



National Innovation Foundation

JHARKHAND INNOVATES

नवसृजन की ओर



JHARKHAND INNOVATES



National Innovation Foundation

Bungalow 1, Satellite Complex
Premchand Nagar Road
Vastrapur, Ahmedabad 380 015
Gujarat, India
Telephone: +91-79-2673 2456/2095
www.nifindia.org Email: info@nifindia.org



HONEY BEE NETWORK

www.honeybee.org, www.sristi.org

Regional Collaborator
Social Upliftment Trust
Hazaribag

CONTENTS

JHARKHAND INNOVATES

PART I
INNOVATIONS FROM JHARKHAND | 11

PART II
HERBAL PRACTICES & PRODUCTS | 21

PART III
INNOVATIONS FOR JHARKHAND | 37

PREFACE

National Innovation Foundation has been pursuing the mission of making India innovative and a creative society since 2000 with the active support of Department of Science and Technology, Government of India. We have not been equally successful in scouting and documenting innovations and traditional knowledge practices in every state.

Thanks to the support of volunteers of Honey Bee network, we have been able to discover many unsung heroes and heroines of our society who have solved local problems without any outside help.

Despite various constraints, NIF has put together a small book celebrating creativity, innovations and traditional knowledge from Jharkhand. I am conscious of its limitation in terms of coverage and outreach. But if we could uncover so many examples of the ability of local communities and individuals to solve problems on their own without outside help, how

much more can be done if state and private sector agencies join hands with NIF actively.

I invite the state government and its various organs to actively support our quest to uncover many more creative communities and individuals in rural and urban areas. NIF will then help in building value chain around them.

The book is divided in three parts. The mechanical innovations developed by innovators from Jharkhand are covered in part one. Selected examples of herbal traditional knowledge are given in part two. The innovations from other parts of the country suitable for the development of Jharkhand are given in part three.

By no stretch of imagination, could we claim that we have achieved a great deal. We have merely made a simple point. There are a large number of people who may not have been

JHARKHAND INNOVATES

educated much, may in fact be economically poor also, but still have the ability to solve a few problems so well.

The challenge really is to work out a synergy so that no creative voice remains unheard, and no solution remains localized and unrecognized. By adapting public policy in support of grassroots innovators and traditional knowledge holders, we can make economic development process more inclusive and sustainable.

This book on innovations has been compiled at the request of Dr. Vijay Kelkar, Chairman, Finance Commission and Member, Governing Council of the National Innovation Foundation as a tribute to the creativity and innovation at grassroots. This presentation is part of a series of innovation compendium prepared for each State of India. We hope this will be followed up in the form of concrete policy and institutional initiatives in each State to empower creative

people to improve the quality of life of common people and thus promote inclusive growth.

It is my belief that such examples will act as spur for other State government departments to look for creative efforts of their staff and users at ground level. I hope that NIF will have the opportunity to work closely with the State government in future and expand knowledge base, add value to selected technologies and help them diffuse through commercial and non-commercial social channels for improving the livelihood of the majority of the people.



R. A. Mashelkar, FRS
Chairperson, Governing Council
National Innovation Foundation, Ahmedabad
ram@ncl.res.in

Building a bridge with grassroots innovators in informal sector

To make Indian development process more inclusive, there is no escape from building upon creative and innovative experiments pursued by common people at village or semi-urban level. Many of these experiments lead to development of innovations, which can improve productivity and generate employment. However, the purpose of a particular innovator may often be to solve his problem. There is no reason for him to share the knowledge, innovation or practice with other people in different regions. Sometimes, ideas and innovations get diffused through word of mouth. But many times, these ideas remain localized. In the process, potential growth and social development gets constrained. To overcome this constraint, Honey Bee Network with a handful of volunteers triggered a movement, twenty years ago to scout, spawn and sustain the unaided innovations and outstanding traditional knowledge from the informal sector of our country.

Drawing upon this experience, NIF (National Innovation Foundation) was set up in 2000 with the help of Department of

¹ The Honeybee collects pollen from the flowers but they are not impoverished, in the process links one flower to another enabling cross-pollination. Similarly, the Honey Bee Network strengthens people-to-people contacts, learning and networking by pooling the solutions developed by individuals across the world

Science and Technology, Government of India to scale up the idea of learning from grassroots innovators.

Under the inspiring leadership of Dr. R. A. Mashelkar, Chairperson NIF and former Director General, Council of Scientific and Industrial Research (CSIR), NIF has taken major initiatives to serve the knowledge-rich, economically poor people of the country. It is committed to making India innovative by documenting, adding value, protecting the intellectual property rights of the contemporary unaided technological innovators, as well as of outstanding traditional knowledge holders. It aims at promoting lateral learning among local communities to generate low cost affordable solutions of the persistent and emerging problems, and enhance the diffusion of innovations on a commercial as well as non-commercial basis.

How does NIF work?

Primarily, NIF has five functions: (a) Scouting and documentation, (b) Value addition and research and

in different sectors. The network acknowledges the innovators, traditional knowledge producers and communicators so that they do not remain anonymous.

JHARKHAND INNOVATES

development, (c) Business development and Micro Venture, (d) Intellectual Property Rights protection and (e) Dissemination, database development and IT applications.

NIF has been entrusted with the responsibility of building a National Register of Grassroots Innovations and Traditional Knowledge. It is not enough to document or disseminate the innovations or outstanding traditional knowledge. Value addition is very important for harnessing the full potential of the idea. NIF has entered into MOU with CSIR and Indian Council of Medical Research (ICMR) besides other organizations. CSIR has allocated funds to support research on grassroots innovations in CSIR labs. Similarly, ICMR supports research on such herbal healing knowledge, which has not been documented in the classical texts and formal institutional literature. NIF also helps in generating a very large pool of open source / public domain technologies. A small number of innovations are also protected by patents and other IPRs.

The Honey Bee Network strongly believes in sharing knowledge among the providers of innovations in their own language, which is achieved by publishing local language versions of Honey Bee newsletter. It also ensures that a fair

For most innovators, attracting risk capital for converting innovations into enterprise is very difficult. They neither can offer much collateral nor are they able to develop business plan or deal with formal R&D system.

A Micro Venture Innovation Fund has been set up with the help of SIDBI to provide risk capital for technologies at different stages of incubation. Under single signature, innovators are trusted and investments are made to help them commercialise their innovations. Most innovators do not make good entrepreneurs. For entrepreneurship, one has to make consistent batch by batch production of products. Innovators are often incorrigible improvisers. They seldom make two things alike. NIF has helped such innovators to license their technologies to third party entrepreneurs. Most of the licenses have been given to small entrepreneurs and in a few cases, to medium enterprises.

A very elaborate benefit sharing system has been developed, governed by the Prior Informed Consent (PIC) of the knowledge

share of benefits arising from commercial exploitation of local knowledge and innovations reaches the innovators and knowledge providers.

providers. Attempt is made to share benefits not only with the innovators but also with their communities and for nature conservation. In addition, a small part is kept for contingency support to needy innovators, for R&D stakeholders, promoting women's innovations and meeting overhead costs.

It is remarkable that grassroots innovations are generating global demand, as evident from inquiries from around fifty-five countries for various technologies, NIF has succeeded in commercializing products across countries in six continents apart from being successful in materialising thirty cases of technology licensing with the help of partner agencies.

What has it done?

With major contribution from the Honey Bee Network, NIF has been able to build up a database of more than 75,000 ideas, innovations and traditional knowledge practices from over 500 districts of the country.

NIF has filed 182 patents in India and seven in US and one PCT. Out of these, 33 patents have been granted to grassroots innovations in India and four in US. NIF has funded 113 projects under MVIF to the extent of Rs.1.3 crores. Hundreds of

technologies have diffused through farmer to farmer social network.

NIF has proved that Indian innovators can match anyone in the world when it comes to solving problems creatively. Where they perform better than rest is in generating more affordable sustainable solutions by using local resources frugally.

Those who see poor only as the consumer of cheap goods, miss the knowledge richness at the grassroots level. The Poor can be the providers also.

The Grassroots to Global (G2G) model that NIF is propagating is all set to change the way the world looks at the creativity and innovations at grassroots.

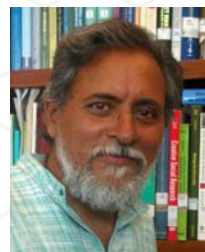
How can state government join hands with NIF?

- a. NIF has no field extension unit nor does it want to have one. However, state government has several field functionaries in the field of agriculture, education, industry, rural development, women and child care, forestry, etc. There can be a very fruitful partnership between NIF as a source of innovative ideas and technologies and state

JHARKHAND INNOVATES

- government as partner in dissemination, value addition and even commercialization through incentives, promotion, subsidies, etc.
- b. State government can join the national campaign for scouting innovations and traditional knowledge and motivate its grassroots functionaries to join hands with NIF in uncovering the talent at the community level.
 - c. Students in schools and colleges can be motivated to scout creative and innovative people in their neighbourhoods and send the entries to NIF (Post Box No.15051, Ambavadi, Ahmedabad 380 015, campaign@nifindia.org). Examples of innovations can also be included in the curriculum of the school children.
 - d. Demonstrations and trials can be organized at various regional research stations, KVKs (Krishi Vigyan Kendras) so as to create awareness about the creative potential of common people.
 - e. The research institutions can be mandated to add value to the knowledge of innovative people and help in protecting their knowledge rights.
 - f. On the state's website, link to NIF can be given and the innovations from the region can be displayed to put forward the creative face of the state before the people.
 - g. Some of the innovative people identified by NIF and/or state government could be awarded at district and state level besides giving them support for further work.
 - h. A nodal officer could be appointed to keep a dynamic touch with NIF to ensure that all the areas of possible cooperation are explored.

I hope that NIF would be able to develop a functional, fruitful and fulfilling relationship with the government of Jharkhand state. Tremendously rich knowledge of biodiversity, minerals and environment can be leveraged through the proposed association.



Anil K Gupta
Executive Vice Chairman
NIF, Ahmedabad
anilg@nifindia.org



“Innovation opens up new vistas of knowledge and new dimensions to our imagination to make everyday life more meaningful and richer in depth and content”.

- Dr. A.P.J. Abdul Kalam



“The purpose of innovation is to create a new value for an individual, team, organization or for society at large”.

- Dr. R.A. Mashelkar

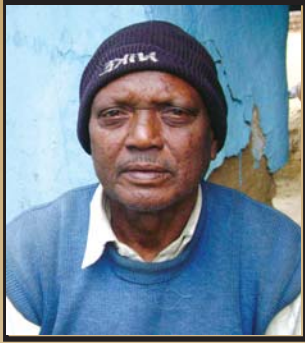
PART I

INNOVATIONS

from JHARKHAND

This section contains grassroots innovations emerging from the rural/urban areas of Jharkhand





Sukhram Mistri
Lohardaga

Portable welding machine

To enable an appliance/device to be welded either requires the device to be carried to the place of the welding or the welding machine to be taken to the place where the requirement is. Either way most of the time it is quite cumbersome. This welding machine has made work easy. It works well on low voltage using a single phase electric supply. NIF facilitated the testing of the device at BIT, Mesra, Ranchi, which has suggested some changes in the materials.



Friendly electric lawn mower

A motor mounted on a self-made chasis is used to cut grass upto one feet tall from the ground level. The mower can cover 1000 square feet per hour. Interesting to note is the fact that the motor can easily be removed from the assembly and used for some other work also.



Murari Sharma
Bokaro





Ankush Kumar
Dhanbad

Cob-web cleaner & Pocket Alarm

Cob-web cleaner

How many times we frown at the irritating sight of the cob webs in the corners of our rooms, which refuse to go away completely with the traditional cleaners. A possible solution comes from a young boy, who has developed a battery operated cob web cleaner, which rotates the head to clean away the last strand of a cob web.

Beware Pick Pocket: an alarm/light to alert

A simple circuit that will make a siren to go off once some one tries to take away something from your pocket. And if you miss the alarm, a light will blink in your goggles. Another idea from the young mind!



Fishing rod with light and sound alarm

Many times while waiting for the fish to be trapped, the mind gets diverted and one misses the fish. This fishing rod has a siren and a light to intimate that the bait has been bitten by the fish.



Sanjay Karmakar
East Singhbhum

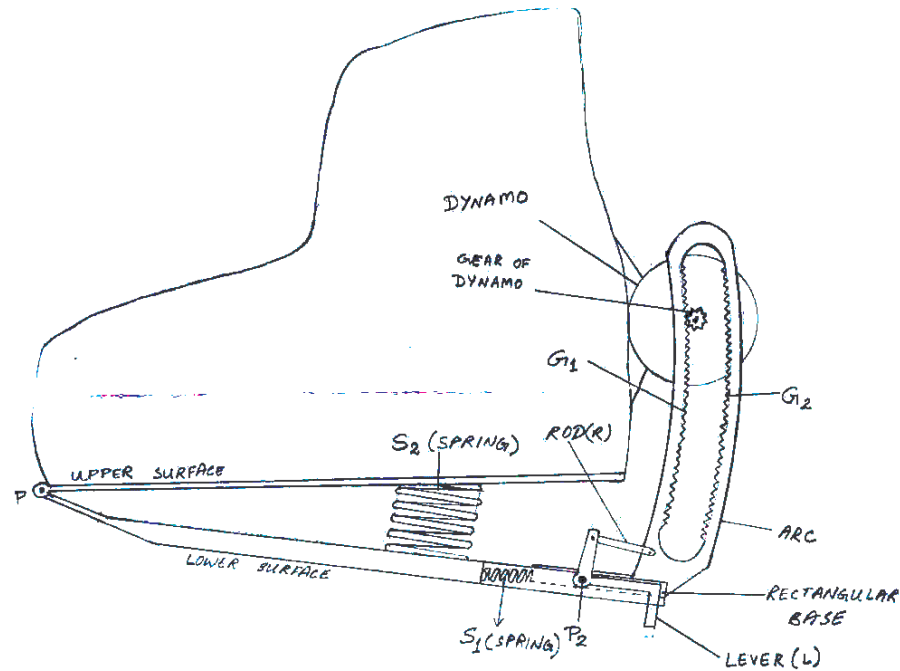




Rajesh Ranjan
Ranchi

Battery Charging Shoes

This is an idea about shoes that would be able to charge batteries that can run various small devices later. In the lower layer of the shoe, a dynamo could be attached. When the shoe would press against the ground, the rotor of the dynamo would rotate due to the weight of the body. Hence, electricity would be generated and the rechargeable batteries would get charged. Rajesh was awarded in NIF's Second National Award Function for his idea.



Tower irrigation system

It is a simple and effective irrigation technique to pump water in the agricultural fields in areas of predominantly undulating topography. It consists of a motor pump that raises water to an optimum height, the water then flows down through the pipes due to gravity and is channeled to the fields through the network of underground pipes. The technology does need further exploration and development.



Meenu Mahato
Hazaribag



20th Shodh Yatra **December 26, 2007- January 2, 2008** **Patamda, East Singhbhum & Purulia to Bankura, West Bengal**

Shodh Yatra is a journey on foot in the search of knowledge, creativity and innovations at grassroots.

It is an attempt on the part of SRISTI, a Honey bee network partner based at Ahmedabad and NIF along with other network partners to reach out to the remotest part of the country with a firm belief that hardships and challenges of natural surroundings are the prime motivators of creativity and innovations.

Shodh Yatra aims at unearthing such traditional knowledge and grassroots innovations that have not only simplified the lives of men, women and farm labourers but have also significantly contributed towards the conservation of bio-diversity.

The yatris, during the 20th Shodh Yatra, over the period of seven days, travelled through the rural areas honouring innovators, traditional knowledge holders, experimental farmers and centenarians on the way. Many biodiversity and recipe contests were also organised at various places. The Shodh Yatra saw the participation of people from all walks of lives, scientists, students, innovators, farmers, journalists and traditional knowledge holders from India and abroad.



NATIONAL INNOVATION FOUNDATION, INDIA

The Sixth National Biennial Competition for Green Grassroots Unaided Technological Innovations and Traditional Knowledge

Co-sponsors



Honey Bee Network



CSIR



SRISTI



IIM-A

The competition

The NIF, set up by Department of Science and Technology, GOI, seeks entries of unaided technological innovations and traditional knowledge developed by an individual or group comprising farmers, artisans, fishermen and women, slum dwellers, workshop mechanics, students, local communities etc., in managing natural and/or other resources. The innovations can be in machines, gadgets, implements, or processes for farm operations, household utility, transportation, energy conservation or generation, reduction in drudgery, creative use of biodiversity, development of plant varieties, generation of herbal remedies for human or animal health or developing new or any other low cost sustainable green technology related to various aspects of survival in urban and rural areas. Creative ideas for innovative technologies which have not yet been reduced to practice are also welcome. Communities developing People's Biodiversity Register (PBR) or People's Knowledge Register (PKR) are encouraged to register/link their knowledge base with the National Register at the NIF.

The awards

The best three innovations and traditional knowledge practices will be awarded Rs 1,00,000, Rs 50,000 and Rs 25,000 each in different categories. In addition, individuals and/or organizations that make extraordinary contributions in scouting grassroots innovations and traditional knowledge may also get awards worth Rs 50,000, 25,000 and 15,000 respectively besides recognition to many others. There will be several consolation prizes of Rs 10,000 each in different categories depending upon the number of entries and incremental inventiveness and potential social and environmental impact. Three most outstanding innovative ideas may be given prizes of Rs 50,000, 25,000 and 15,000 in addition to consolation prizes of Rs 5,000 each. There are special prizes for innovations by or dealing with, physically challenged people. The

innovations /ideas of professionally trained persons are not considered for award or financial support. There are special awards for journalists writing about grassroots innovations and/or traditional knowledge and creating greater awareness about NIF's missions. *The award money may be revised in due course.*

Students

Young inventors and innovators are invited to send their ideas or innovations for a special category of awards for them. These should be unsupervised, an outcome of their own creativity, without any support from their teachers or outsiders. There will be prizes worth Rs 15,000, 10,000 and Rs 7,500 for the best three entries and several consolation prizes of Rs 5,000 each in this category.

How to participate

Individuals or groups may send as many entries as they wish on plain paper providing a) genesis of the innovation and traditional knowledge b) its background and c) educational qualification and occupation, accompanied by photographs and/or videos if possible and any other information that may help in replicating the innovations/traditional knowledge. Herbal entries may be accompanied by dried plant samples to enable proper identification procedure. The **Sixth National Competition started on February 1, 2007 and entries would be accepted till December 31, 2008.** Every entry should include the **full postal address**, to facilitate further communications.

Where to send entries?

National Coordinator (Scouting & Documentation), National Innovation Foundation, Bungalow No. 1 Satellite Complex, Premchand Nagar Road, Ahmedabad 380015 Gujarat
Toll Free No 1800 233 5555 Fax: (079) - 2673 1903
email: campaign@nifindia.org; www.nifindia.org